BALATRON 331

USER'S MANUAL



Fig. 1 Balatron 331

For any information, please contact: www.fasep.it
e-mail: info@fasep.it

FASEP 2000 srl
Via Faentina 96
50030 Ronta (Fi) Italy
Tel. #39 055 840 3126
Fax #39 055 840 3354

WARNING

.This document contains information which is the property of FASEP 2000 srl and all rights are reserved. This manual shall not be photocopied or reproduced in any way without the prior written consent of FASEP 2000 srl.

.FASEP 2000 srl reserves the right to revise products firmware, software or documentation without obligation to notify any person or organization. The information contained in this document is subject to change without warning.

.Prior of the installation of the unit described in this manual, user should read this manual carefully to be instructed properly on installation, use and maintenance of the unit.

*.**Failing to read this manual and operate accordingly may cause damage to the user or the unit**.*

.FASEP 2000 srl shall not be responsible for inconvenience, breakdown, accidents due to uncomplete knowledge of this manual or uncomplete application of recommendations described in this manual.

.FASP 2000 srl shall not be responsible for inconvenience, breakdown, accidents due to unauthorized modifications of the unit, use of non-original or unauthorized accessories (see Accessories listing in this manual for a list of original accessories available for this model).

*.**FASEP 2000 srl shall not be responsible for any inconvenience, breakdown, accidents caused directly or indirectly by not qualified service. Service to any parts by not qualified persons will void warranty and will void any right of the owner of the unit.***

SYMBOLS AND CONVENTIONS
To speed the retrieval of main information and make easy to understand the instructions, this manual uses the following typing conventions:

<NAME OF THE PUSH BUTTON>	Used to indicate name of push-buttons on the control panel.
DISPLAY	Used to indicate text or number visible on the displays on the control panel.
ADVICES	Contain useful advices or solutions, evidence d with respect to the rest of the text.
NOTE	Notes contain important information, evidenced to the rest of the text.
WARNING	Warning messages appears corresponding to procedures that, if not properly observed, may lead to loose of data or cause damage to the unit.
CAUTION	Caution messages appears corresponding to procedures that, if not properly observed, may cause injuries to the user.

TABLE OF CONTENTS

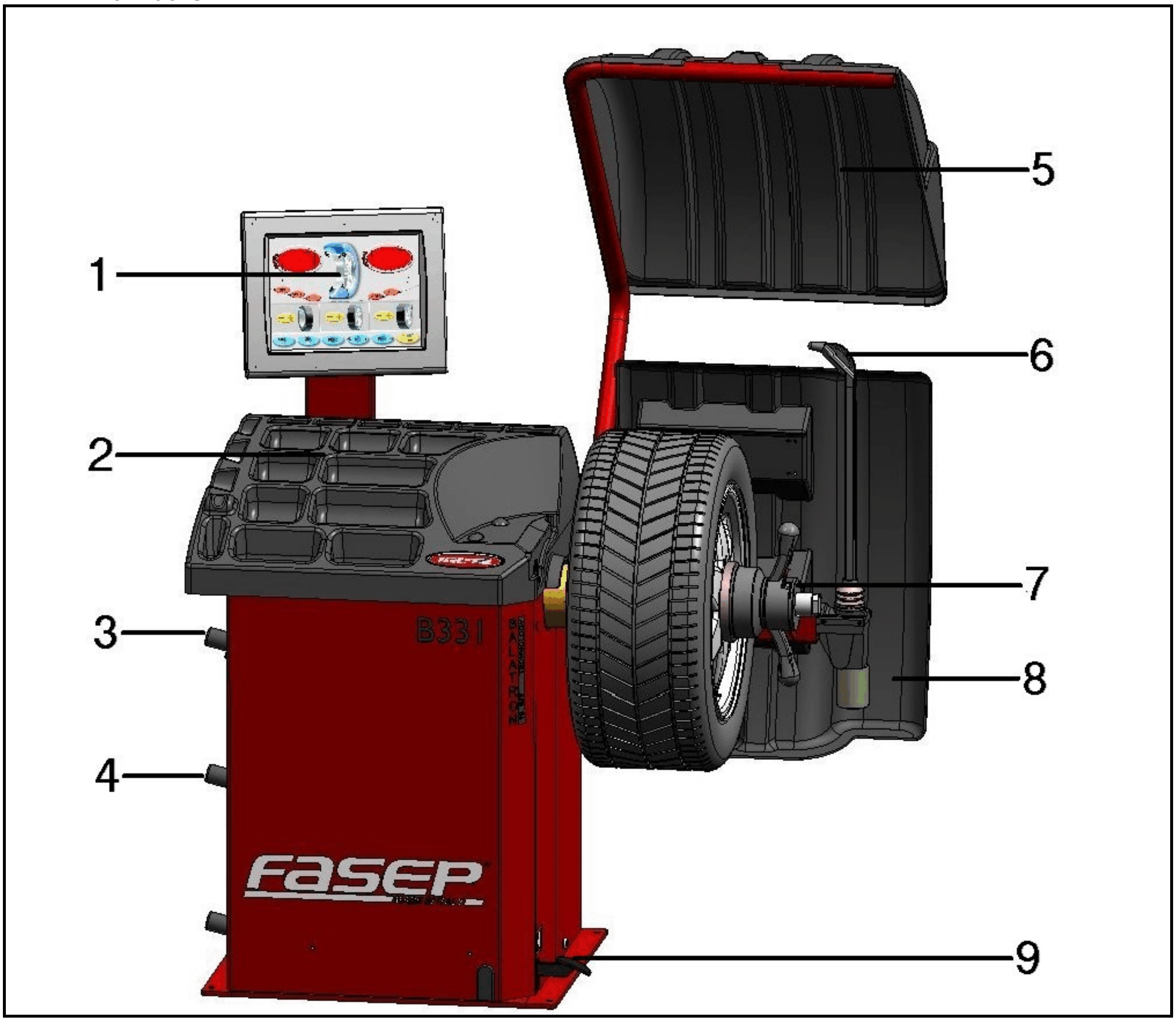
1 PRESENTATION

1.0 Intended Use

This unit is designed to measure and correct static and dynamic unbalance of vehicle wheel, the dimension and weight of which are within the working range of the machine (see “Technical Data”appendix for reference)
This unit is meant for a professional use. Operator shall be properly trained before use. Training Course is not included in the price of the unit and must be purchased separately.
This unit is designed for indoor use only (see “Environmental Data”appendix for reference).

CAUTION: *This unit is designed to spin vehicle wheels only, within the range of dimensions and weight approved (see “Technical Data”appendix for reference). Special adaptors suit this purpose. Do not attempt to use the machine to spin anything else. Unproper locking may cause the part being spun to be ejected, causing damage to the unit itself, the operator or anything in the in the neighborhood.*

1.1 Definitions



1. 3D console
2. Weights and tools compartments
3. Nameplate label
4. Flange holders
5. Wheel guard
6. External measuring system
7. Quick lock + HD shaft
8. Lower wheel guard
9. Foot-pedal electromagnetic brake

2 INSTALLATION



2.1 Moving the unit

WARNING When the unit has to be moved: never lift balancer by motor shaft or by neighborhood of it.

2.2 Assembling the unit

For ease of transportation, the wheel balancer might be disassembled into units. If necessary, assembling instruction are provided within each package.

2.3 Installation

The wheel balancer must be installed on a firm and level ground.

NOTE: the machine must be secured to the floor. Using four holes in the base and anchor bolts provided.

2.4 Electrical Hookup

CAUTION: *Failure to follow these instructions can results in damage to unit or create an electrical hazard and will void warranty.*



2.4.1 Electrical hookup is to be provided by a qualified electrician.

2.4.2 A fusible wall-mounted switchbox is required at the installation site. This switch should provide on-off control and overload protection for your wheel balancer only. The switchbox should be fused with time-delay fuse(s) in accordance with the power rating specified on your wheel balancer.

2.4.3 Electrical connection of the machine should be by plug connectors.

2.4.4 The balancer must be effectively connected to ground. The electric cord is regularly provided with a ground terminal.

2.4.5 Make sure that Power Rate Specifications for your wheel balancer (refer to nameplate on the wheel balancer) comply with those provided by the external power source.

CAUTION *After electrical hookup has been performed unit is ready to operate. Always observe pertinent safety precautions when operating the unit (see Appendix tables for an overview of relevant Safety requirement).*

3 USE THE CONTROL PANEL

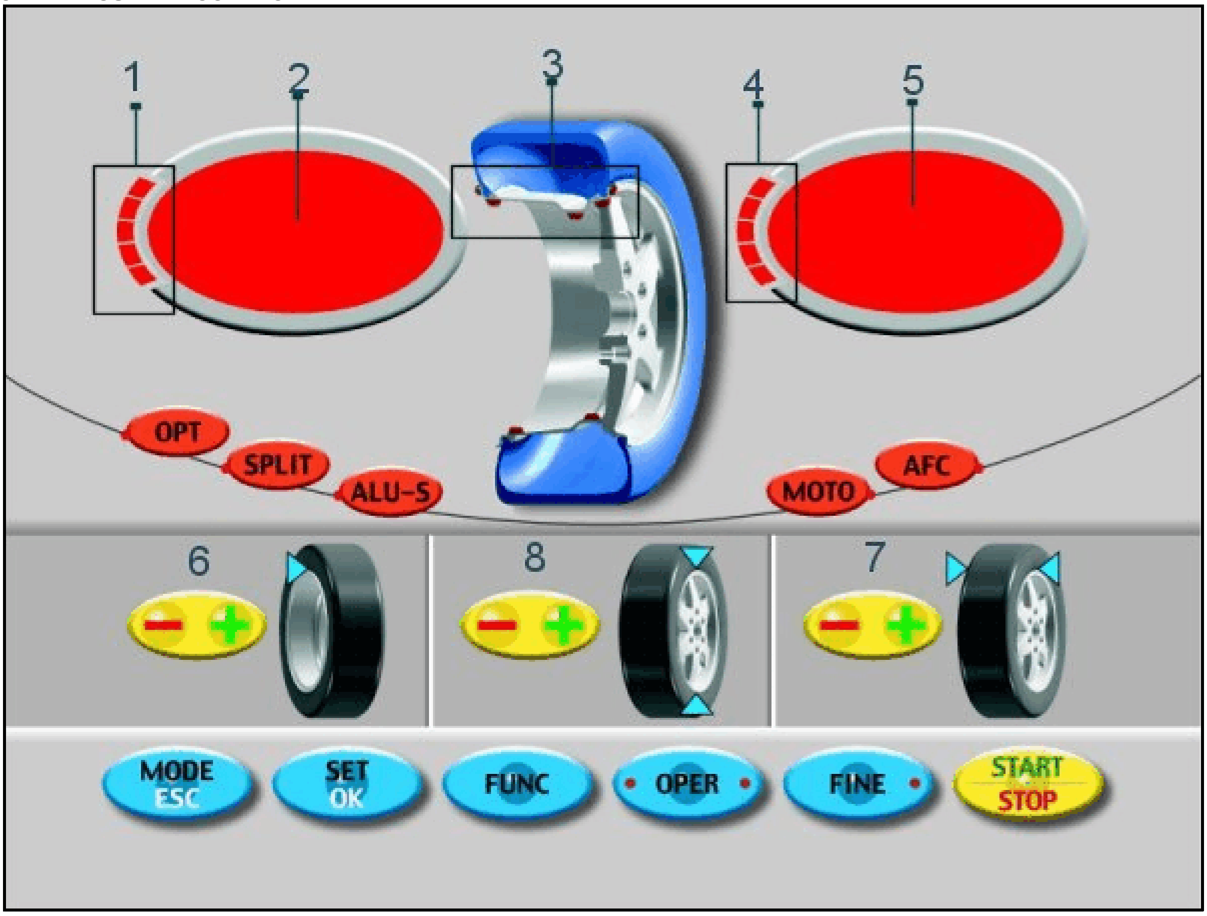


FIG. 5: Panel Balatron 331

3.1 Meaning of keys at the keyboard

These instructions apply to Normal Operating Mode. Other function maybe activated by these keys in other operating modes (see Special Functions).

<MODE>: . . . . To select balancing type: Dynamic-Static-Alu.
<SET>: . . . . Confirm selection
<OPER>: . . . . To select Operator 1 or Operator 2.
<FINE>: . . . . To select reading scale.
<FUNC>: . . . . To select specific functions
<START-STOP>: . . . . Starts-stops wheel spinning.
6 <DISTANCE -/+>: . . . . Set internal side measure.
7 <WIDTH -/+>: . . . . Set width measure.
8 <DIAMETER -/+> . . . . Set diameter measure.

3.2 Meaning of Led Indicators

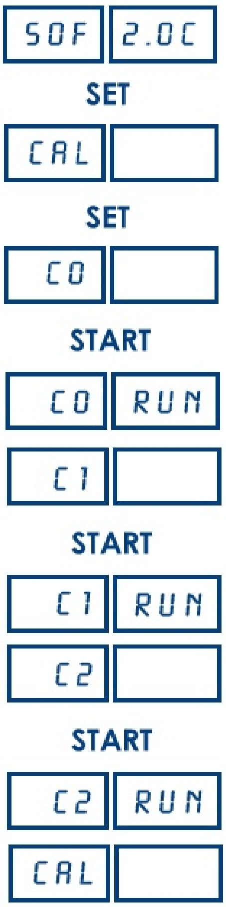
1-4: . . . . indicate location of weight required.
2-5: . . . . indicate amount of weight required.
3: . . . . indicate the application point of weights.

4 CALIBRATION

4.1 How to calibrate the Wheel Balancer

NOTE: *the following symptoms indicate need for calibration:*

a) check calibration program fails.
b) constant low or high weight readings.
c) indicated point of unbalance constantly wrong
d) more than 2 spins required to balance wheels repeatedly



Switch on the wheel balancer.
Press **<SET>** when SOF **X.XX** (software version) is displayed.

Spin the empty shaft (Fig. 7).

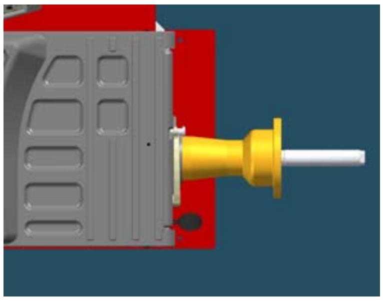


FIG. 7

Place a wheel on the flange (Fig. 8).

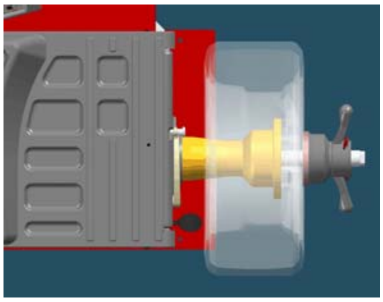


FIG. 8

Put the calibration weight (Fig.9).

End of calibration.

Press **<MODE/ESC>** to return to normal balancing mode.

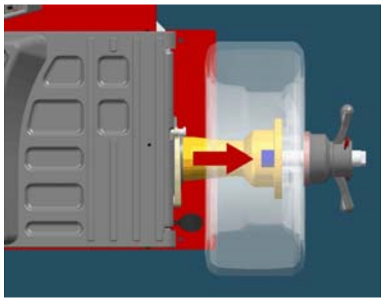


FIG. 9

4.2 How to check the calibration of Wheel Balancer



Press <+/-> to select CAL TEST

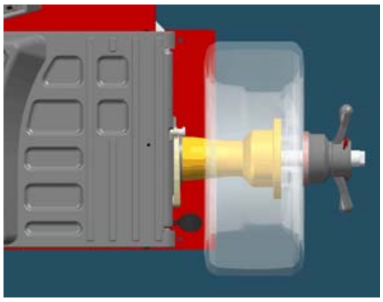


FIG. 11

Place a wheel on the flange (Fig. 11).

Put the calibration weight (Fig. 12).

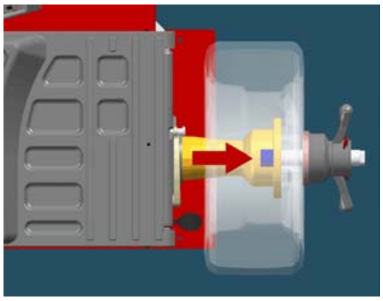
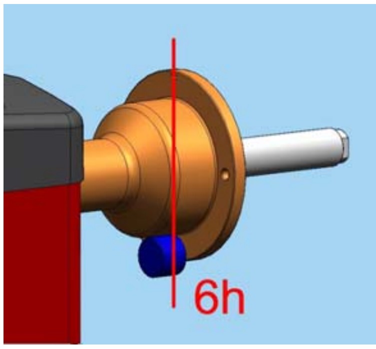


FIG. 12



Press **<FINE>** to see actual values. 160-0 (±3) is correct result.

When all LED (left side) are lit, calibration weight must be at exactly 6 o'clock.

If no, press **<FUNC>** to calibrate position.

Turn the wheel until the calibration weight is located at 6 o'clock.

Press **<MODE/ESC>** to return to normal balancing mode.

5 MEASUREMENT AND CORRECTION OF UNBALANCE

5.1 Placing the wheel rim on the wheel balancer

5.1.1 Select the cone or flange suitable for the wheel to be balanced.

NOTE: *The operation of centering and tightening of the wheel on the flanges is of basic importance for correct balancing. Good results depend on proper performance of these procedures.*
Clean accurately all cones, shaft and adapter surface before placing the wheel on the wheel balancer.

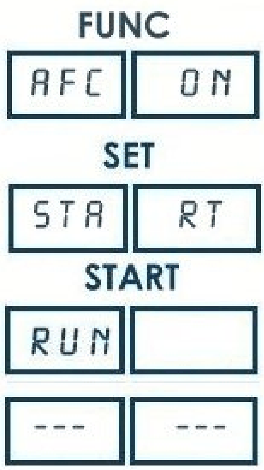
CAUTION: *Always make sure flanges are correctly locked on the motor shaft and wheel is correctly locked on the flange being used*.

5.2 How to compensate unbalance of flanges using AFC function

NOTE: *This operation allows to put compensate unbalance of flange and other accessories.*

5.2.1 Lock the required flange on the shaft without the wheel.

HOW TO TURN ON AFC FUNCTION

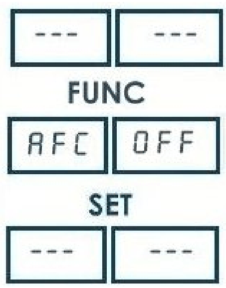


Press FUNC up to AFC

The AFC led blinking

The AFC led is on

HOW TO TURN OFF AFC FUNCTION



Remove the flange.

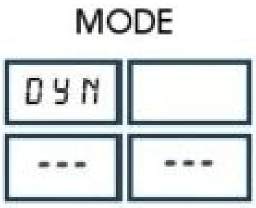
Press FUNC up to AFC

The AFC led switch off.

5.3 Input of Rim Dimensions

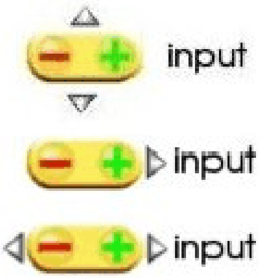
NOTE: *DOUBLE OPERATOR option: this wheel balancer can be used from 2 operators in the same time. Everyone can memorize the dimensions of the wheel to balance with **<OPER>** button. The machine memorizes the operating procedure too.*

5.3.1 DYNAMIC MODE / STATIC MODE (Manual input)



Press **MODE** to select the operating mode.

Select the wheel diameter.



Select the distance of the wheel.(Fig.18, Fig.20)

Select the wheel width.

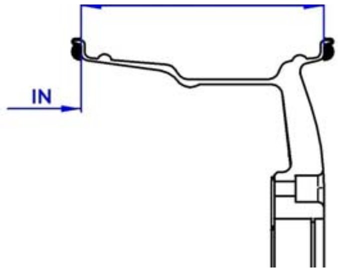


FIG. 17: DYNAMIC

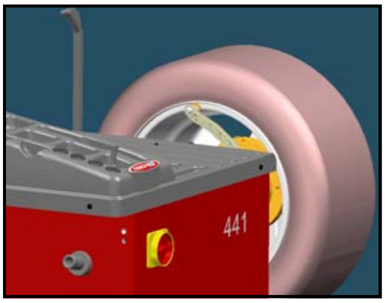
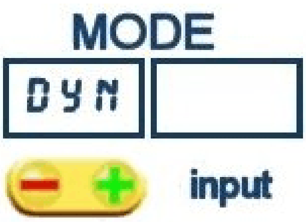


FIG. 18: Rod positioning for distance measurement

5.3.2 DYNAMIC MODE / STATIC MODE (Automatic input - optional)

.



Press **MODE** to select the operating mode.

Press **<DISTANCE -/+>** to start measurement.

Place the automatic input systems to start measurement. Wait for the BEEP. (Fig.18, Fig. 21).

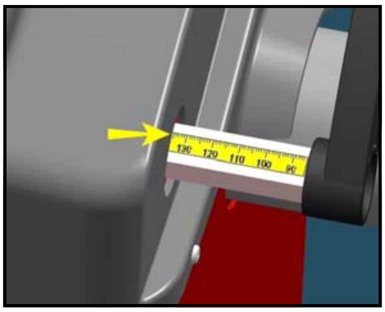


FIG. 20: Reading distance gauge

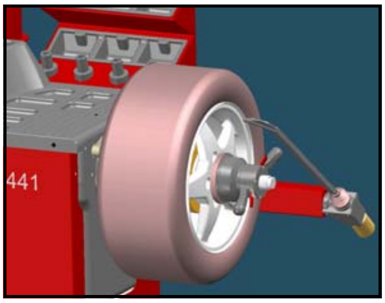
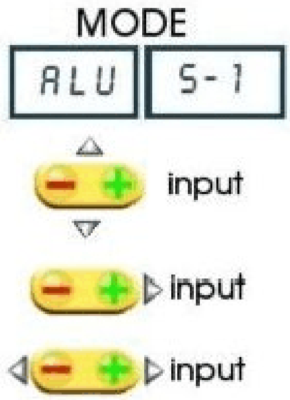


FIG. 21: Rod positioning for width measurement

5.3.3 ALU S-1 MODE / ALU S-2 MODE (Manual input)



Press **MODE** to select the operating mode. (Fig. 23, Fig. 24).

Select the wheel diameter.

Insert the internal measure (IN 1) (Fig. 18, Fig.20).

Insert the external measure (IN 2) (Fig.27, Fig.20)

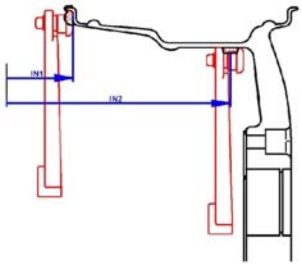


FIG. 23: ALU S-1

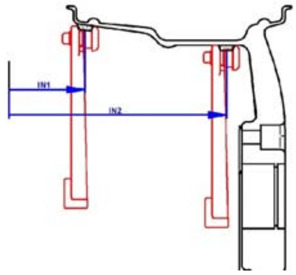


FIG. 24: ALU S-2

5.3.4 ALU S-1 MODE / ALU S-2 MODE (Automatic input - optional)



Press **MODE** to select the operating mode (Fig. 23, Fig.24)

Press **<DISTANCE -/+>** to start measurement.

Insert the internal measure (Fig. 26). Wait for the BEEP.

Insert the external measure (Fig. 27). Wait for the BEEP.

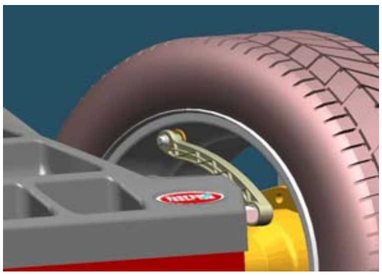


FIG. 26:

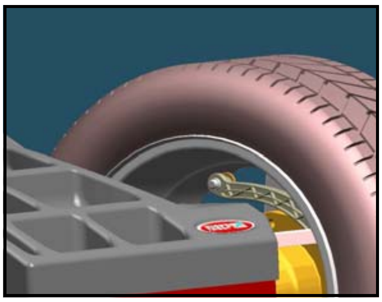


FIG. 27

5.4 Detecting and correction of the unbalance

5.4.1 After setting wheel dimensions, press **<START>** or close the safety cover (optional) to spin the wheel and start the measurement run.

CAUTION: *Wheel start automatically when safety cover is closed.*

5.4.2 At the end of the spin the wheel will brake automatically and the display will show the weight position and weight requirement to correct the wheel's unbalance.

5.4.3 If unbalance shown is 0, press **<FINE>** to show residual unbalance.

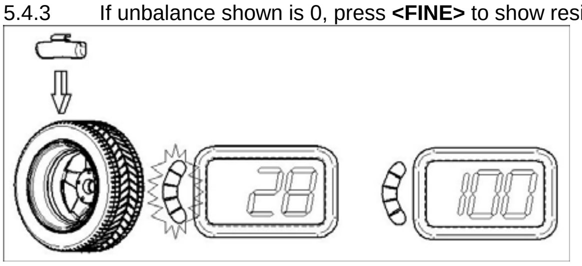


FIG. 28: inside weight indication

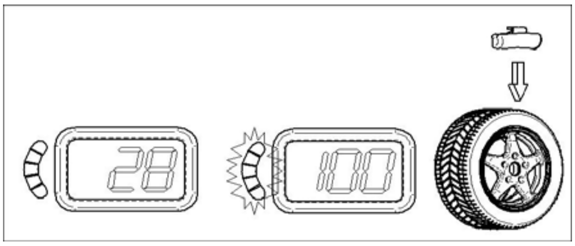
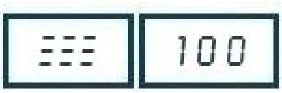


FIG. 29: outside weight indication

NOTE: *OPT light blinking after the measurement indicates that static unbalance is exceeding more than 30grs. Optimization procedure is suggested.*

5.5 How to apply the weight using ALU-SE applicator



Place the weight (Fig. 31).

Turn the wheel to the position (Fig. 28, Fig. 29).

Move the rod until ≡≡≡ appears on the display (picture at left).

Apply the weight (Fig. 31, Fig. 32).

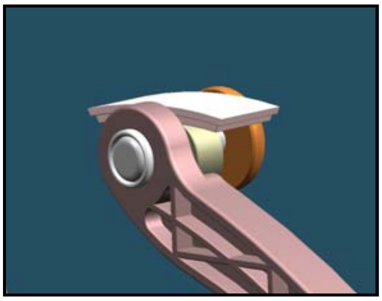


FIG. 31

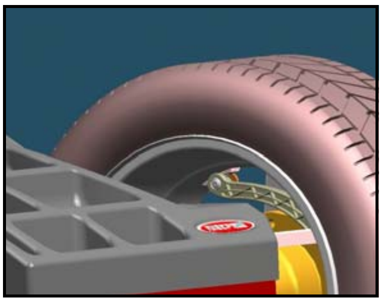


FIG. 32

6 HOW TO OPTIMIZE UNBALANCE OF THE WHEEL

6.1 Measure the unbalance of the rim only. Once the measurement of rim unbalance is calculated, press **<FUNC>** to enter optimization function.



Mount the tyre on the rim. After mounting the tyre, the wheel must be put on the shaft in the same position as before.

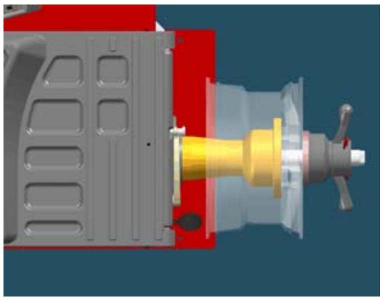


FIG. 34: First spin, rim only

Left display (20 in example) indicates present static unbalance. Right display (55% in example) indicates possible reduction of weight in %.

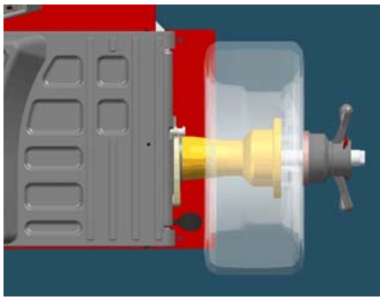


FIG. 35: second spin, complete wheel

Turn the wheel until SIGN 1 is displayed.

Mark the rim (12 o'clock).

Turn the wheel until SIGN 2 is displayed.

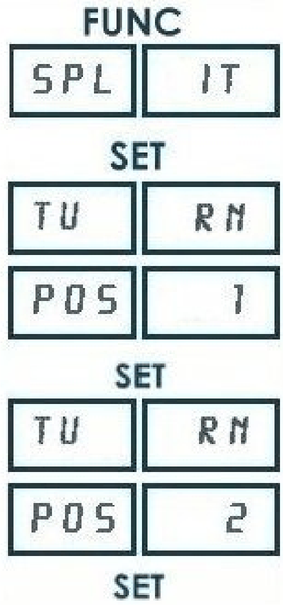
Mark the tyre (12 o'clock).

Put the two marks together to optimize unbalance.

6.2 After pressing **<SET>**, the program return to the measurement of unbalance mode, where an indication of the residual unbalance values will be given.

7 HOW TO USE SPLIT WEIGHT FUNCTION

7.1 Measure the unbalance of the wheel. Once the measurement of unbalance is calculated, press **<FUNC>** to enter split function.



Turn the wheel until POS 1 is displayed.

Mark the tyre when the first spoke selected is at 12 o'clock.

Turn the wheel until POS 2 is displayed.

Mark the tyre when the second spoke selected is at 12 o'clock.

7.2 The weight in grams for external side is displayed only when the wheel is in a correct position (12 o'clock).

8 SPECIAL FUNCTIONS MENU

8.1 Enter in the special functions menu

Switch on the wheel balancer and press **<SET>** before SOF X.XX will disappear.
The possible functions are:

CAL	Calibration of wheel balancer
CAL tSt	Control of the calibration of electronic sensors
CAL rod	Calibration of electronic input sensors
SEn Sor	Diagnostic of sensors
StA tiS	Statistic about the use of machine
USr Set	User setup
tEc Set	Technical Setup
Ser nuM	Serial number
Act Cod	Inserting Activation Codes
LAS er	Laser control

8.2 Diagnostic program of sensors

Switch on the wheel balancer and press **<SET>** before SOF X.XX will disappear. Select Sen Sor and press **<SET>** to enter in the diagnostic program of sensors.
The possible functions are:

rPM	Balancing speed
dIS	Value of distance sensor
dIA	Value of diameter sensor
tO	Encoder is in the zero position
PoS	Angle of position sensor (from 0 to 255)
PS1	Voltage of PS1
PS2	Voltage of PS2
Cou	Safety cover is open or closed
Ped	Air footbrake (only PL)
air	Air pressure (only PL)
LHS	Controll of laser position inside/outside (on/off)
TS1	Piezo timeboard PS1 (single)
TS2	Piezo timeboard PS2 (double)

8.3 Statistic program

Switch on the wheel balancer and press **<SET>** before SOF X.XX will disappear. Select Sta tis and press **<SET>** to enter in the statistic program.
The possible functions are:

tOt	Total number of spin
SUC	Percent of runs with a good result
da 11 a 17	Percent of wheels with the indicated diameter
CAL	Number of calibrations

8.4 User Setup

Switch on the wheel balancer and press **<SET>** before SOF X.XX will disappear. Select USa SET and press **<SET>** to enter in the user setup program.
The possible functions are:

ScA LE	Set 1 or 5 grams step (0.05/0.25 ounces)
Cut oFF	Set minimum weight to be displayed
Uni Out	Unit of measure for the width (0=inch, 1=millimeters)
Uni Umb	Unit of measure for the weight (0= grams, 1=once)
Fin AL	Display of final (0 = normal, 1 = blink, 2= Go OD).
biP	Acustic signal (ON or OFF)
EME StP	Motor brakes In case of emergency stop (On or OFF) (OFF: motor power is cut)
Cou Er	On = the motor start only if the safety cover is closed; OFF = safety cover is not installed; Aut = closing of safety cover the motor starts automatically.
rod	Enable/Disable automatic input system
rES Et	Load Factory Setup
adm in	Enable/Disable Administration mode.
opt	Soglia di richiesta di ottimizzazione
Laser	Enable/Disable laser
Alu mat	Set the type of weights (Pb/Zn)
alu dim	Set the dimension of the adhesive weight.

APPENDIX

A: Technical Data

Input		100W
Measuring time		98RPM
Control run		4-15 seconds
Accuracy		±1gr (±1/28 ounce)
Wheel dimensions	**Rim Diameter**	from 8" (200mm) to 23" (575mm)
	Wheel Diameter	max 34" (850mm)
	Rim Width	max 16" (415mm)
	Wheel Weight	max 90 Kg (198Lbs)

Wheel balancer dimensions

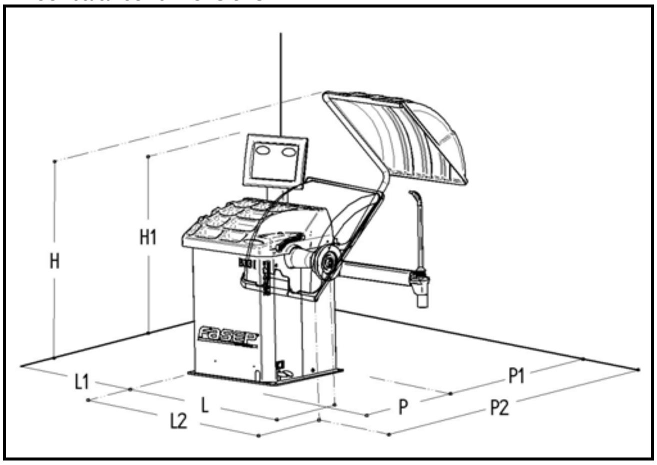


FIG. 37: Wheel balancer measures Balatron 331

	B331
L (mm)	1040
L1 (mm)	500
L2 (mm)	1240
P (mm)	870
P1 (mm)	200
P2 (mm)	1310
H (mm)	1680
H1 (mm)	1420
Peso (kg)	140

B: Environmental Data, Safety Features and Requirements

Environmental Data

[*Operating conditions*]
This unit is designed for indoor use only.
Temperature: 0 to 45°C
Relative Humidity: 5 to 80% a 40°

[*Storage conditions*]
Package is designed for indoor storage only.
Temperature: -25° to 70°C
Relative humidity: 5 at 95% to 40°C

Safety Features

1. A Safety cover with electrical interlocking (may be optional in some countries) is provided for user's safety at the time the wheel is spun. The installation of the Safety cover is mandatory in the European Countries. This Safety cover is part of the standard equipment of the wheel balancer in such countries. Drive of the machine may start with closed Safety cover only. If open, the safety cover interrupts the circuits to the drive motor and prevents automatic starting, even if a defect occurs. Make sure Safety cover is correctly installed before operating the unit.
2. The Balance Weights Holder may be removed for servicing. It is secured to the machine body through screws so that only voluntarily it may be removed. Removal of this protection is therefore restricted to Authorized Service Engineers.
3. The Control Panel may be removed for servicing. It is secured to the machine body through screws so that only voluntarily it may be removed. Removal of this protection is therefore restricted to Authorized Service Engineers.

WARNING *FASEP 2000 srl shall not be responsible for any inconvenience, breakdown, accidents caused directly or indirectly by unauthorized service. Service to any parts by unauthorized engineers will void warranty and will any right of the owner of the unit.*

General Safety Requirement

[*before using/servicing this unit*]

1. Read this instruction manual before operating or servicing the wheel balancer.
2. Make sure electrical power source conforms to requirements shown on nameplate (see also model identification chart for reference).
3. Make sure the unit has a stable position and it's bolted to the ground.

[when using the unit]

4. Protect power leading to the unit from damage.
5. When work area is being washed, make sure unit is adequately protected.
6. Remove all stones and mud lodged in tire treads before balancing the wheel.
7. Do not touch spinning wheel.
8. Make sure counterweights are securely attached before checking residual unbalance.

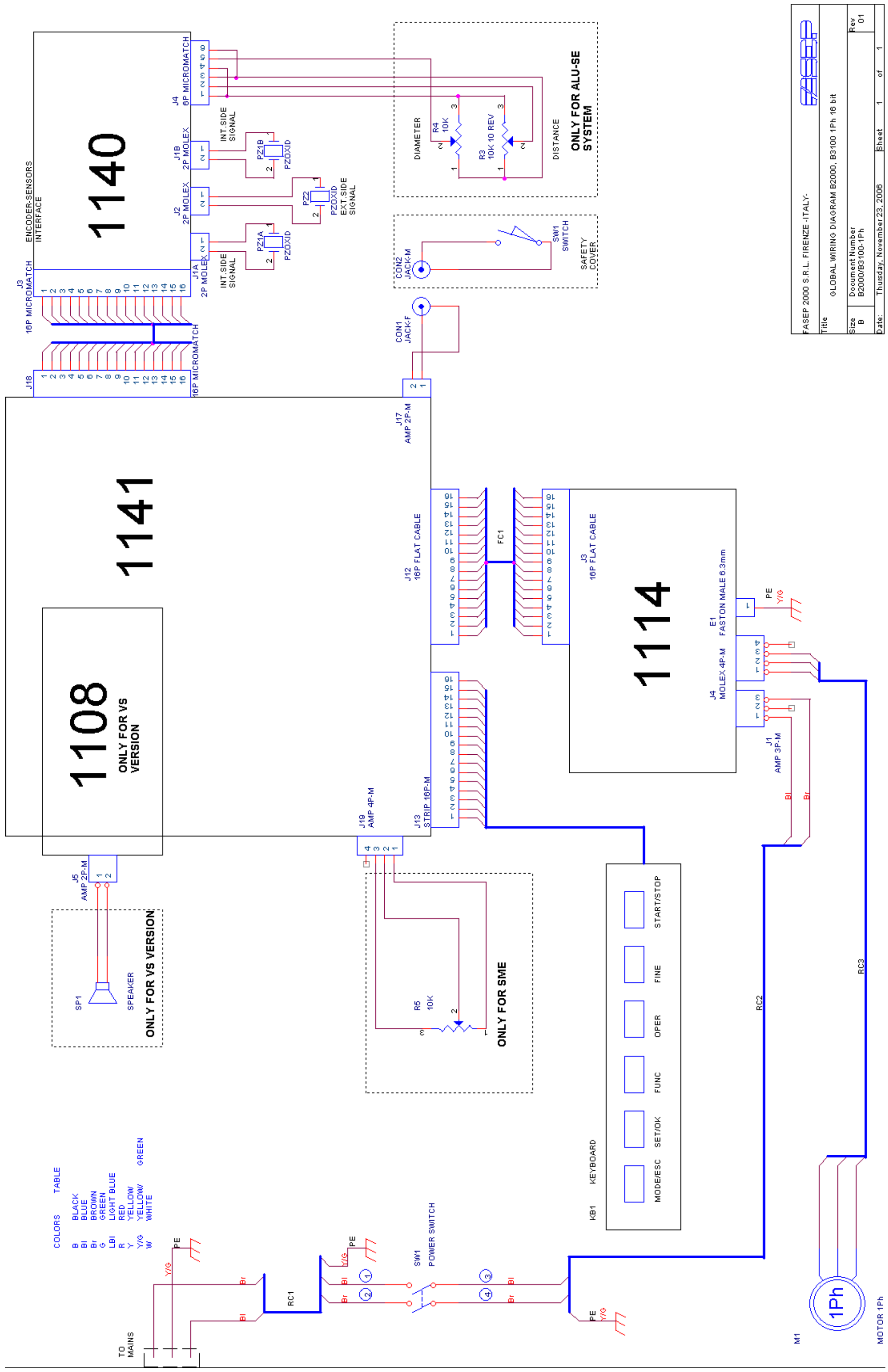
[*when servicing the unit*]

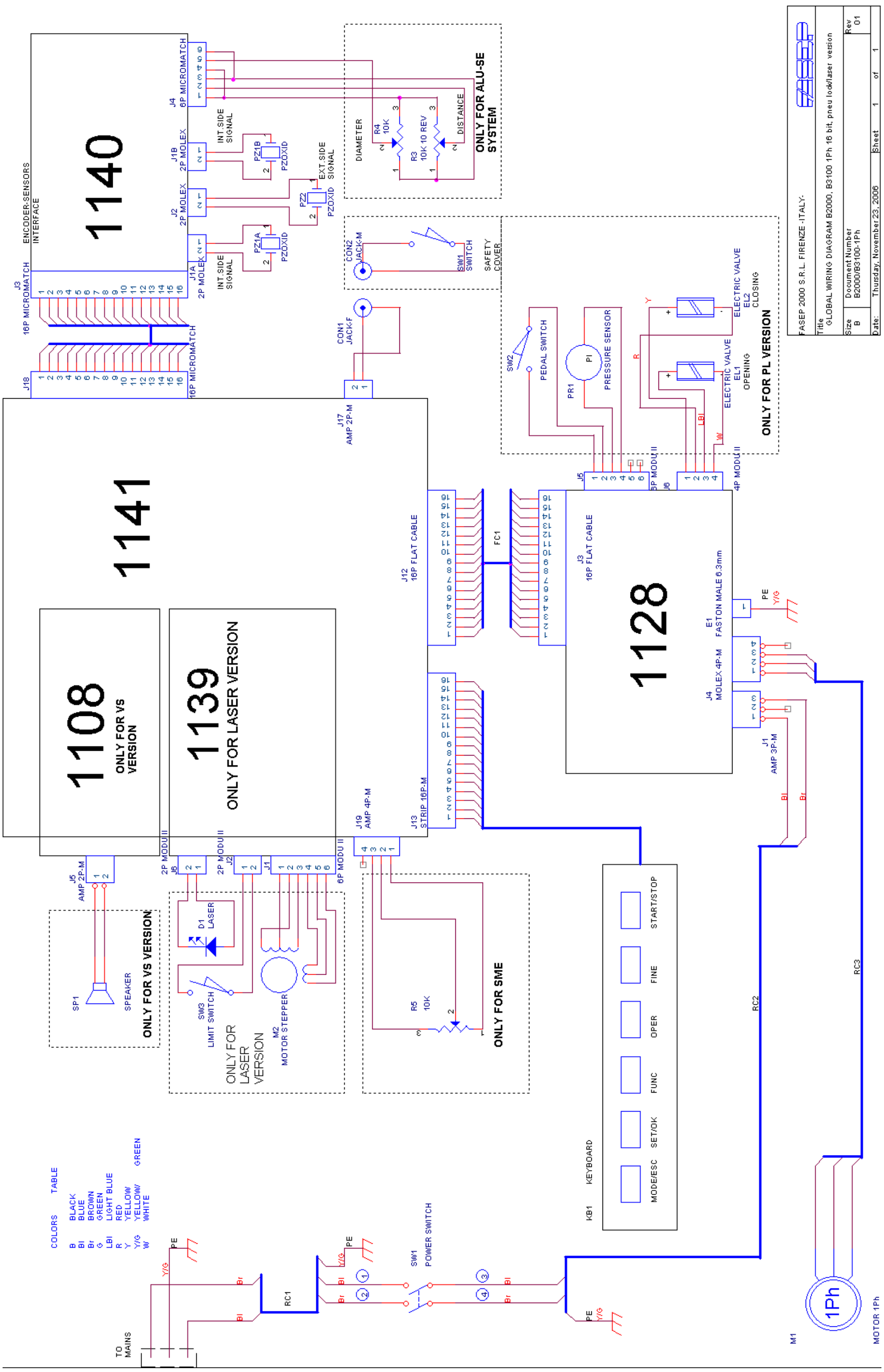
9. Make sure power sources are disconnected before service on the unit is performed.
10. Service to PCB, electrical and mechanical parts should be done only by an Authorized FASEP 2000 Service Center.

C: Errors and Malfunctions recognized by the Computer

Errors may apply to some model only.

ERR 1: Shaft does not rotate
ERR 2: Rotation Direction is wrong
ERR 3: Rotation speed is not ready
ERR 4: Rotation speed is wrong (too low or too high)
ERR 5: Position Sensor or Position Disk failure
ERR 6: Safety Safety cover is open
ERR 7: Measuring cycle was interrupted
ERR 8: Calibration weight was not inserted.
ERR 9: Activation code not correct
ERR 10: Overflow in calculations
ERR 11: Serial number is wrong
ERR 12: Serial number not inserted
ERR 13: Reserved
ERR 14: Uncorrect password
ERR 15: E^2prom error
ERR 16: Calibration memory error
ERR 17: Rod in uncorrect position
ERR 18: Excessive weight detected
ERR 19: Reserved
ERR 20: Reserved
ERR 21: Error in inputting data
ERR 22: Brake error
ERR 23: Substance change due to shakes
ERR 24: Insufficient air pressure
ERR 25: Reserved
ERR 26: wheel is not securely locked
ERR 27: Piezo sensor not ok


1140
ENCODER-SENSORS INTERFACE
J3 16P MICROMATCH
J4 6P MICROMATCH
J1B 2P MOLEX
J2 2P MOLEX
J1A 2P MOLEX
INT.SIDE SIGNAL
EXT.SIDE SIGNAL
PZ1B
PZ2
PZ1A
PZOXID
DIAMETER
R4 10K
R3 10K 10 REV
DISTANCE
ONLY FOR ALU-SE SYSTEM
CON2 JACK-M
SW1 SWITCH
SAFETY COVER
CON1 JACK-F
J18 16P MICROMATCH
1141
J17 AMP 2P-M
J12 16P FLAT CABLE
FC1
J3 16P FLAT CABLE
1114
E1 FASTON MALE 6.3mm
PE
Y/G
J4 MOLEX 4P-M
J1 AMP 3P-M
1108
ONLY FOR VS VERSION
J19 AMP 4P-M
J13 STRIP 16P-M
J5 AMP 2P-M
SP1
SPEAKER
ONLY FOR VS VERSION
R5 10K
ONLY FOR SME
START/STOP
FINE
OPER
FUNC
SET/OK
MODE/ESC
KB1 KEYBOARD
RC2
RC3
COLORS TABLE
B BLACK
Bl BLUE
Br BROWN
G GREEN
LBl LIGHT BLUE
R RED
Y YELLOW
Y/G YELLOW/ GREEN
W WHITE
TO MAINS
RC1
SW1 POWER SWITCH
1Ph
M1
MOTOR 1Ph
FASEP 2000 S.R.L. FIRENZE -ITALY-
Title
GLOBAL WIRING DIAGRAM B2000, B3100 1Ph 16 bit
Size B
Document Number B2000/B3100-1Ph
Rev 01
Date: Thursday, November 23, 2006
Sheet 1 of 1


1140
1141
1108
ONLY FOR VS VERSION
1139
ONLY FOR LASER VERSION
1128
ONLY FOR ALU-SE SYSTEM
ONLY FOR PL VERSION
ONLY FOR SME
ONLY FOR VS VERSION
KEYBOARD
START/STOP
FINE
OPER
FUNC
SET/OK
MODE/ESC
POWER SWITCH
TO MAINS
MOTOR 1Ph
1Ph
FASEP 2000 S.R.L. FIRENZE -ITALY-
GLOBAL WIRING DIAGRAM B2000, B3100 1Ph 16 bit, pneu lock/laser version
B2000/B3100-1Ph
Thursday, November 23, 2006